

Title: Alternative and sustainable protein sources in support of muscle health and performance

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Abstract:

High-quality dietary proteins, containing all essential amino acids (EAA), are a critical macronutrient for enhancing muscle health and performance. Low intakes of protein are associated with reduced muscle mass, poor muscle function and reduced muscle strength in older adults as well as sub-optimal performance and recovery in athletes. Acute postprandial aminoacidemia after consuming dietary protein is a key driver of muscle protein synthesis (MPS), the amplitude and duration of which is controlled substantially by the quality of the protein ingested. Leucine, Branch Chain Amino Acids (BCAA) and essential amino acids (EAA) are particularly potent activators of the signalling pathways leading to a net increase in MPS over muscle protein breakdown (MPB). Thus, identifying high-quality proteins that regulate protein degradation and particularly MPS is critical for the development of potential interventions that can protect or enhance muscle mass and function for health and performance.

Typically, due to their EAA component, animal proteins have been the 'go to' protein source to achieve these aims. With both a growing and ageing population worldwide, meeting dietary protein requirements represents a significant challenge. In the context of a climate emergency and in line with the UN Sustainable Development Goals which include achieving "food security and improved nutrition and promote sustainable agriculture", there is an onus to identify alternative and sustainable high-quality proteins to support health and optimise performance.

This symposium will focus on evaluating quality of protein sources, sustainability and evidence supporting both alternative and more sustainable protein sources to enhance muscle health and performance.